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STRUCTURES FOR IMPROVING HEAT DISSIPATION
IN STACKED SEMICONDUCTOR PACKAGES

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ABSTRACT

[0093] Semiconductor packages including at least two semiconductor dies are disclosed. A first die is mounted on a substrate, which may be a metallized laminate or a leadframe. A rigid support structure is mounted on the substrate over the first die. The support structure may be thermally coupled to the substrate, and also may be electrically coupled to the substrate. A second die is mounted on the support structure, which spaces the second die away from the first die. Encapsulant fills the volume within the support structure, including the vertical space between the pair of dies. In an alternative package embodiment, a heat spreader formed of a flexible metal sheet may be thermally coupled between the two stacked dies. The heat spreader transfers heat from the first and second dies to a heat sink of the substrate. The support structure and the heat spreader mitigate the transfer of heat between the first and second dies.